

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claims 19-21 and 23 have been amended, and claim 22 has been canceled. Support for the amendments is provided at least in Fig. 2 and paragraphs [0043] and [0044] of the specification.

Claims 19-23 were rejected, under 35 USC §103(a), as being unpatentable over Chen (US 6,067,458) in view of Hamabe (US 7,050,761). To the extent these rejections may be deemed applicable to the amended claims, the Applicant respectfully traverses based on the points set forth below.

Claim 19 now defines a base station apparatus that transmits data using a transmission scheme determined by a base station control apparatus based on a reception quality signal communicated by the base station apparatus to the base station control apparatus. More specifically, the base station control apparatus determines whether the base station apparatus transmits the data using a high speed downlink packet access (HSDPA) mode or a dedicated downlink physical channel (DPCH) mode in accordance with the reception quality signal. The claimed subject matter may provide HSDPA communication between a base station and a mobile station during good channel conditions and DPCH communication during poor channel conditions, so as to improve the throughput of the communication system.

The Office Action acknowledges that Chen does not disclose the claimed feature of a base station reporting a quality deficiency signal to a base station control apparatus (see Office Action page 3, second paragraph). Thus, it follows that Chen *per force* cannot disclose the

feature now recited in claim 19 of transmitting data using a transmission scheme determined by a base station control apparatus in accordance with a reception quality signal communicated by a base station to the base station control apparatus.

The Office Action proposes that Hamabe discloses a base station control apparatus that determines whether a base station will transmit data using an HSDPA mode or a DPCH mode based on a reception quality signal communicated by the base station to the base station control apparatus (see page 5, lines 3-5). More specifically, the Office Action proposes that Hamabe discloses this feature in column 15, lines 24-51 and column 17, lines 19-26.

The Applicant respectfully disagrees with the position taken in the Final Rejection for the following reasons.

In the latter citation to Hamabe's specification, Hamabe discloses, with regard to Fig. 18, a mobile station 5 that selects a modulation/coding mode based on the quality of a received signal detected by an error detecting portion 27 of mobile station 5 (see Hamabe col. 16, lines 53-60, and col. 17, lines 4-18). Hamabe further discloses that mobile station 5 transmits information of the selected modulation/coding mode to a base station through an uplink DPCH channel and transmits payload information through an uplink HS-PDSCH channel (see col. 8, lines 33-35, and col. 17, lines 17-25).

However, Hamabe's disclosure of a mobile station that determines a modulation/coding mode is not the same as the claimed feature of a base station control apparatus that determines whether a base station will transmit data using either a DPCH mode or a HSDPA mode. More specifically, a mobile station is not the same as a base station control apparatus and a modulation/coding mode is not the same as a DPCH or HSDPA transmission mode. Moreover,

Hamabe's disclosure of a mobile station transmitting a modulation/coding mode selection through a DPCH channel and payload through an HSDPA channel is not the same as the claimed base station transmitting data through either a DPCH mode or an HSDPA mode in accordance with a determined reception quality.

In columns 15 and 16, Hamabe discloses, with respect to Fig. 2, another embodiment of the invention in which a base station 1 switches a modulation/coding mode in accordance with channel quality signals received from a mobile station (see col. 16, lines 14-31). However, Hamabe's disclosure of a base station that determines a modulation/coding mode is not the same as the claimed base station control apparatus that determines either a DPCH or an HSDPA transmission mode.

In addition to the two embodiments of Hamabe's invention discussed above, Hamabe discloses that a base station control apparatus may determine the modulation/coding mode to be employed by a base station (see col. 8, lines 24-28). However, Hamabe's disclosure of determining a modulation/coding mode in accordance with an indication of reception quality is not the same as the claimed feature of determining whether to employ a DPCH or an HSDPA transmission mode in accordance with an indication of reception quality.

Accordingly, the Applicant respectfully submits that Chen and Hamabe, considered individually or in combination, do not render obvious the subject matter now defined by claim 19. Independent claims 20 and 21 similarly recite the above-mentioned subject matter distinguishing claim 19 from the applied references. Therefore, allowance of claims 19-21 and dependent claim 23 is warranted.

To promote a better understanding of the differences between the claimed subject matter and the applied references, the Applicant provides the following additional remarks.

Conventionally, an HSDPA transmission scheme employs adaptive modulation to change a modulation scheme according to a channel condition. With such an HSDPA transmission scheme, each mobile station apparatus sends an outbound pilot channel reception condition report based on reported values of radio quality, such as CQI, and a base station apparatus determines a mobile station apparatus be made a transmission target based on the reported values of radio quality and further determines a modulation scheme.

By contrast with this, features of the claimed invention include using reported values of radio quality, which are generally used for adaptive modulation, to determine whether to switch a transmission scheme. In an exemplary, but non-limiting, embodiment of the invention, when reported values of radio quality, such as CQI, transmitted from a mobile station apparatus, which performs HSDPA data transmission, are lower than a predetermined threshold value, a base station apparatus generates and reports a quality deficiency signal to a base station control apparatus and performs data transmission by way of a transmission scheme determined by the base station control apparatus. In this way, data transmission is performed by way of HSDPA for a mobile station apparatus in a good channel condition and data transmission is performed by way of DPCH for a mobile station apparatus in a poor channel condition, so that it is possible to yield the effect of improving overall system throughput.

Further, the claimed base station apparatus supports eliminating a mobile station apparatus, which is experiencing poor channel conditions, from the mobile station apparatuses subject to scheduling, so that it is possible to yield the effect of reducing the load on the

scheduler. Also, the claimed invention supports reducing the number of mobile station apparatuses requiring control, so that it is possible to yield the effect of enabling the base station apparatus to reduce the transmission power for HS-SCCH transmitted as a control signal. Additionally, the claimed subject matter supports allowing a mobile station apparatus, which is experiencing a poor channel condition, to receive data on a DPCH, so that it is possible to yield the effect of suppressing unnecessary transmission of reported values of radio quality.

Hamabe discloses a base station having a modulation/coding mode switching determining portion that monitors a receiving error notice from a mobile station. Upon receiving the receiving error notice, the base station apparatus forwards the receiving error notice to a base station control apparatus. After the base station control apparatus receives the receiving error notice, the base station control apparatus forwards an instruction to the base station to switch a modulation/coding mode for the mobile station to a slower transmission mode, and, if a target block error rate is satisfied, switches the modulation/coding mode for the mobile station to a faster transmission mode.

However, the above description of Hamabe's disclosure relates to an adaptive modulation scheme, and, consequently, corresponds to a conventional technique. By contrast with this, the claimed invention may assume that adaptive modulation is performed using reported values of radio quality, generate a quality deficiency signal based on the reported values of radio quality, and determine whether or not to switch the transmission scheme based on the quality deficiency signal. To be more specific, when the reported value of radio quality is lower than a predetermined threshold value (e.g., claim 19), the base station apparatus may generate and

report a quality deficiency signal to the base station control apparatus and perform transmission by way of a transmission scheme determined by the base station control apparatus.

Thus, Hamabe does not disclose or suggest using reported values of radio quality, which are generally used for adaptive modulation, to determine whether to switch a transmission scheme. The claimed subject matter supports eliminating a mobile station apparatus in a poor channel condition from mobile station apparatuses subject to scheduling, so that: (1) the load on the scheduler may be reduced and (2) the number of mobile station apparatuses requiring control can be reduced. Also, the claimed invention supports reducing the transmission power for HS-SCCH transmitted as a control signal. Additionally, a mobile station apparatus in a poor channel condition can receive data on DPCH and, thereby, suppress unnecessary transmission of reported values of radio quality. These unique features of the claimed invention may be realized on the assumption that there are more than two modulation schemes, and, consequently, Hamabe cannot realize these features.

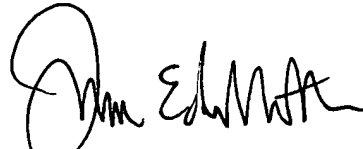
Similarly, Chen does not disclose the above-mentioned features of the claimed invention and, therefore, cannot yield the unique effects of the present invention.

Accordingly, for these additional reasons, the Applicant respectfully submits that Chen and Hamabe, considered individually or in combination, do not render obvious the subject matter now defined by claim 19, independent claims 20 and 21, or dependent claim 23

In view of the above, it is submitted that all pending issues have been resolved and that this application is in condition for allowance. A prompt notice of allowance is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "James E. Ledbetter". The signature is stylized with a large initial "J" and a cursive "E. Ledbetter".

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